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Running head: Mental health and mental toughness

**Are Mental Toughness and Mental Health Contradictory Concepts in Elite Sport? A  
Narrative Review of Theory and Evidence**

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## Abstract

Athlete development and management encompass a complex interaction of biological, psychological, and social factors. Within elite sport, multidisciplinary sport science and medicine teams play an important role in achieving an optimal balance between preventing athlete ill-health and optimizing health and performance. The psychological aspects of athlete health and performance have gained increased attention over the past two decades, with much of this research concerned with the mental health of athletes and the concept of mental toughness. Recently, it was proposed that mental health and mental toughness are contradictory concepts in the world of elite sport. Although an interesting proposition, this claim was not substantiated. Thus, the purpose of this narrative review was to evaluate theory and evidence regarding the thesis that mental health and mental toughness are contradictory concepts in the world of elite sport, with the view to advance scholarly knowledge and inform professional practice. A critical evaluation of this literature suggests that mental toughness may represent a positive indicator of mental health, or facilitate its attainment, rather than be at odds with it. When implemented alongside multilayered approaches to organizational change (e.g., group structures, policies), mental toughness could be used as a ‘hook’ to attract athletes into settings that can open dialogue on the importance of mental health and improve knowledge of key issues (e.g., stigma, symptoms).

**Keywords:** mentally tough; mental health stigma; organizational stressors; self-actualization; stress; thriving

23 **Are Mental Toughness and Mental Health Contradictory Concepts in Elite Sport? A**  
24 **Narrative Review of Theory and Evidence**

25

26 The psychological aspects of athlete health and performance have gained increased attention  
27 over the past two decades, with much of this research concerned with the mental health of  
28 athletes and the concept of mental toughness. It was recently proposed that mental health and  
29 mental toughness are contradictory concepts in the world of elite sport<sup>1</sup>. The central thesis of  
30 this argument is that the culture in sport is one where there is stigma associated with athlete  
31 mental health issues, and therefore any desire to obtain professional help is undermined by  
32 the fear of being labeled ‘mentally weak’. At first glance, the proposed contradiction between  
33 mental health and mental toughness has intuitive appeal; however, a short yet thought-  
34 provoking editorial of this nature precludes the opportunity to develop arguments fully, such  
35 that the central concepts remained undefined and many of the key assertions were  
36 unsubstantiated. This point is particularly pertinent as the readership of sport science and  
37 medicine journals may be unfamiliar with the intricacies and details of the literatures on  
38 mental health and mental toughness, and therefore there is a danger of misinterpretation or  
39 uncritical acceptance of the essential proposition. As theory and evidence are essential to  
40 scientific progress and informed professional practice, the purpose of this narrative review is  
41 to evaluate substantive and empirical perspectives that can shed light on the target question;  
42 that is, are mental health and mental toughness contradictory concepts in elite sport? A  
43 narrative review was the preferred approach for two reasons: (i) collectively, we have  
44 published over 40 papers or chapters on mental toughness and therefore have a sound  
45 understanding of this literature base; and (ii) an electronic search of several databases (Web  
46 of Science, Scopus, OvidSP and EBSCO) using key terms (“mental toughness” OR “mentally  
47 tough” AND “mental health” OR “mental illness”) identified fewer than 15 papers, most of

48 which were irrelevant to the focus of this review (e.g., no data on the association between  
49 mental toughness and indicators of mental health). Cognizant of this key information, it is our  
50 hope that sport science and medicine personnel will be better positioned to evaluate,  
51 diagnose, and manage issues that are important for athlete mental health and/or performance.

52

### 53 **Synopsis of Stimulus Editorial**

54

55 In a recent issue on mental health care in athletes, readers were provided with a timely  
56 reminder of the demands and challenges faced by elite athletes and the potential deleterious  
57 effects of such stressful events. Focused specifically on the concepts of mental health and  
58 mental toughness, Bauman contextualized his editorial with a brief historical overview of the  
59 importance of mental illness for human society and the prevalence of mental health issues  
60 among adults in the US. The main essence of the editorial served to answer the question,  
61 “Are mental toughness and mental health seen as contradictory in elite sport?” Referring  
62 briefly to the historical, social and cultural conditions of sport (e.g., profit and success driven  
63 organizations, media glorification of successful athletes), Bauman summarized elite sport as  
64 an environment where the perceived consequences of appearing ‘weak’ outweigh the  
65 incentives of seeking help. Thus, the answer to this target question was yes; mental toughness  
66 and mental health are contradictory concepts in elite sport.

67

### 68 **Conceptual Perspectives of Mental Health and Mental Toughness**

69

70 Contemporary conceptualizations acknowledge that mental health encompasses the presence  
71 of positive indices (e.g., vitality) *and* absence of negative symptoms (e.g., depression)<sup>2</sup>. In  
72 1999, David Satcher, the Surgeon General (p. 4) defined mental health as “a state of

73 successful performance of mental function, resulting in productive activities, fulfilling  
74 relationships with people, and the ability to adapt to change and to cope with adversity”<sup>3</sup>.  
75 This perspective has been reinforced by the World Health Organization, who defined mental  
76 health as “a state of well-being in which the individual realizes his or her own abilities, can  
77 cope with the normal stresses of life, can work productively and fruitfully, and is able to  
78 make a contribution to his or her community”<sup>4</sup>. These definitions underscore two key features  
79 of mental health that are pertinent to the purpose of this narrative review. First, mental health  
80 is not simply the absence of psychopathology or mental illness, but rather encompasses a  
81 consideration of two broad yet interrelated dimensions of positive and negative indices that  
82 are essential components of optimal functioning<sup>2</sup>. Second, mental health is state-like and  
83 therefore a dynamic construct, such that one could be considered as high in mental health at  
84 one point in time but low in mental health at another point. Without specific reference to such  
85 definitional points in a critical editorial<sup>1</sup>, it may be concluded mistakenly that mental health is  
86 concerned solely with the presence or absence of illness or pathological issues.

87

88 Current perspectives suggest that mental toughness represents a collection of personal  
89 resources that are salient for goal-directed behavior despite varying degrees of situational  
90 demands<sup>5</sup>. Mental toughness is an aspect of psychological individuality that encompasses the  
91 aggregation and integration of resources over time through one’s experiences with stress and  
92 adversity<sup>6</sup>. Broadly speaking, these personal resources are said to foster goal-directed  
93 behavior by enabling individuals to *strive* (i.e., direction and magnitude of effort expended  
94 on a task), *survive* (i.e., manage everyday challenges or overcome major adversities) and  
95 *thrive* (i.e., experience growth through one’s experiences)<sup>7</sup>. Hence, there are two core  
96 features of the conceptualization of mental toughness that are pertinent to the purpose of the  
97 present paper. First, mental toughness is an aspect of psychological individuality made up of

98 positive indices of personal resources (e.g., self-efficacy, optimism). Consistent with this  
99 perspective, mental toughness is one of the most prevalent concepts of the broader field of  
100 positive psychology within the sport sciences<sup>8</sup>. Second, mental toughness is a salient  
101 construct for positive human functioning in the face of situational demands, which might vary  
102 from the ‘ups and downs’ of everyday life (e.g., learning new team strategies) to major  
103 adversities (e.g., season ending injury). The exclusion of a conceptually sophisticated  
104 definition of mental toughness in a critical editorial<sup>1</sup> is an important omission.

105

106 Are mental health and mental toughness contradictory concepts? Intuitively, it is easy to see  
107 how readers who may be unfamiliar with these literatures may agree with the affirmative to  
108 this question<sup>1</sup>. Nevertheless, a consideration of definitions and theory suggests that mental  
109 toughness may represent a positive indicator of mental health, or facilitate its attainment,  
110 rather than be at odds with it. Both mental toughness and mental health share conceptual  
111 overlap in terms of positive functioning (e.g., subjectively and objectively assessed) and the  
112 centrality of stress and adversity. In this sense, self-actualization, or the fulfillment of one’s  
113 potential<sup>9</sup>, is a key conceptual thread between mental health and mental toughness. Stress is  
114 ubiquitous in contexts such as elite sport where high performance underpins innovation,  
115 success, and competitive advantage. Stressors experienced by athletes emanate from their  
116 interactions with multiple aspects of their lives and the sporting environments, including  
117 personal (e.g., work-life interface, family issues), competition (e.g., inadequate or disrupted  
118 preparation; risk of injury; expectations of media, sponsors, coaches) and the organizational  
119 contexts (e.g., selection processes, cultural and team issues)<sup>10,11,12,13</sup>. Unsurprisingly, there are  
120 many reasons why athletes are vulnerable to mental health problems, such as the considerable  
121 investments of time and energy, commitment to the identity of an athlete with little  
122 exploration of other aspects of self, competitive failure, injury, and recurring separation and

123 reconnection with family and friends from travel<sup>14</sup>. The extent to which these stressors and  
124 adversities are detrimental to performance or mental health is dependent upon the resources  
125 athletes have available to cope with these events<sup>13</sup>. Conceptualized as a collection of personal  
126 resources that enables athletes to withstand stressors and adversities, mental toughness is  
127 expected to promote the fulfillment of one's potential<sup>7</sup> and therefore contribute to the  
128 attainment of mental health. From a theoretical perspective, therefore, mental health and  
129 mental toughness do not appear to be contradictory concepts.

130

### 131 **Empirical Perspectives of Mental Health and Mental Toughness**

132

133 In addition to theoretical and definitional perspectives, it is important to consider evidence  
134 that may dis/confirm the proposition that mental toughness and mental health are  
135 contradictory concepts in elite sport. Unfortunately, there is no published research that has  
136 directly tested this thesis with elite athletes, thus reinforcing the natural appeal of the  
137 proposition that mental health and mental toughness are contradictory concepts<sup>1</sup>. Elite  
138 athletes have been the subject of past research on mental toughness; however, their data is  
139 typically analyzed in combination with performers from other competitive levels. Thus, there  
140 is a need to consider related research on mental toughness with non-elite athletes and  
141 performers from other achievements contexts (e.g., education, military) to provide insight on  
142 the evidence base regarding the contradictory nature of mental health and mental toughness.

143

144 In examining the validity of various tools designed to operationalize the mental toughness  
145 construct, researchers have sought to ascertain convergent validity with concepts that are  
146 representative of positive or negative symptoms of mental health. Research with adolescent  
147 athletes has revealed an inverse association between various dimensions of self-reported



148 mental toughness and depression ( $-0.10 < r > -0.24$ ), stress ( $-0.14 < r > -0.30$ ), and anxiety (-  
149  $0.17 < r > -0.25$ )<sup>15</sup>, and a positive association between mental toughness and positive affect ( $r$   
150  $= 0.40$ )<sup>16</sup>. Among adolescent and adult cricketers, self-reported mental toughness has been  
151 shown to be inversely related with dimensions of the burnout syndrome, including emotional  
152 and physical exhaustion ( $-0.15 < r > -0.23$ ), reduced sense of accomplishment ( $-0.33 < r > -$   
153  $0.44$ ), and devaluation of sport ( $-0.19 < r > -0.41$ )<sup>17</sup>. Within the context of educational  
154 achievement, mental toughness has been found to be associated with higher levels of positive  
155 indices (thriving,  $\beta = 0.64$ ; positive emotions,  $\beta = 0.58$ ) and lower levels of negative  
156 symptoms (composite of depression, anxiety and stress,  $\beta = -0.32$ ) of mental health among  
157 university students over the course of a university semester<sup>5</sup>. Collectively, these cross-  
158 sectional and longitudinal results suggest that athletes who are high on mental toughness tend  
159 to report lower levels of negative symptoms and higher levels of positive indices of mental  
160 health.

161

162 Research supports the notion mental toughness enhances goal-directed behavior in the face of  
163 situational demands that vary in magnitude. Within the context of sport, mental toughness has  
164 been associated with higher performance among adolescent cross-country runners ( $\beta =$   
165  $0.39$ )<sup>16</sup>. A 12-month intervention in which cricketers received repeated exposure to  
166 punishment-condition stimuli in the training environment resulted in improvements in coach-  
167 rated mental toughness for the experimental but not control group ( $d = 0.91$ ). In turn, the  
168 experimental group demonstrated improvements in competitive performance statistics ( $d =$   
169  $0.85$ ) and indoor batting assessments against pace bowling ( $d = 0.81$ ) over the 12-month  
170 period<sup>18</sup>. In an educational context, mental toughness has been shown to be associated with  
171 academic ( $\beta = 0.38$ ) and social goal progress ( $\beta = 0.18$ ) over the course of a semester among  
172 university students<sup>5</sup>. Finally, research has supported the adaptive nature of mental toughness

173 for performance within military settings. Instructor-rated mental toughness is positively  
174 associated with end of course performance ( $r = .33$ ) among infantry recruits, and selection  
175 test performance ( $r = 0.36$ ) for the specialized Parachute Regiment of the British Army<sup>19</sup>.  
176 These latter findings are consistent with data based on self-assessed mental toughness, such  
177 that male candidates who reported higher levels of mental toughness were three times more  
178 likely (OR = 3.48) to pass a 6-week Special Forces selection test<sup>5</sup>. As performance failure  
179 may elevate athletes' risk of mental ill-health<sup>20,21</sup>, mental toughness should reduce this risk  
180 because it fosters high performance. Collectively, this evidence supports the notion that  
181 mental toughness is an important resources for self-actualization or the fulfillment of one's  
182 potential<sup>9</sup>.

183

184 Are mental health and mental toughness contradictory concepts? To date, there is no  
185 published research that has directly tested this thesis with elite athletes. Consideration of  
186 related research with adolescent athletes, students, and military personnel provides  
187 preliminary support for the theoretical expectation that mental toughness represents a positive  
188 indicator mental health, or facilitates its attainment (e.g., ability to adapt, successful  
189 performances, work productively), as opposed to the notion that it is at odds with it.

190

### 191 **Prevalence of Mental Ill-Health Among Athletes**

192

193 To better appreciate the significance of the target proposition<sup>1</sup>, it is important to consider the  
194 prevalence of negative indices of mental health among elite athletes. This point is particularly  
195 pertinent as these statistics were not presented to the reader in the stimulus editorial for this  
196 narrative review, but rather focused on the prevalence of negative indices of mental health  
197 among adults in the US<sup>1</sup>. There is good reason to believe that elite athletes are at increased

198 vulnerability to mental health problems when compared with the general population. In  
199 addition to negative life events (e.g., death of a loved one) that one typically encounters at  
200 some point in their lives<sup>22</sup>, athletes experience a broad range of stressors and adversities that  
201 are unique to the sporting context<sup>10,13,23</sup> and which have the potential to increase their risk for  
202 mental health problems. For many sporting endeavors, individuals are often in their athletic  
203 peak<sup>24</sup> during a developmental period where the risk for the onset of mental health problems  
204 is high<sup>20,25</sup>. This sensitive developmental period for the onset of negative symptoms, coupled  
205 with the combination of stressors and adversities that are specific the athlete role and life in  
206 general, is likely to amplify athletes' risk of mental health problems. Contrary to this  
207 expectation, findings from a systematic review of the mental health and well-being of elite  
208 athletes indicated that levels of high-prevalence negative symptoms of mental health (e.g.,  
209 anxiety, depression) among elite athletes is broadly similar to the general population<sup>26</sup>.

210

### 211 **Mental Health Stigma and Mental Toughness**

212

213 Regardless of whether or not athletes are more vulnerable to mental health problems when  
214 compared with the general population, it is important that athletes who experience mental ill-  
215 health are connected with clinicians who are equipped to help reduce and prevent the  
216 associated symptoms and dysfunctions (e.g., affect, motivation). With increased support  
217 systems for mental health care within sport settings<sup>1</sup>, it is critical that athletes seek out and  
218 engage in evidenced-based services in response to negative symptoms of mental health or  
219 proactively for prevention purposes<sup>27,28,29</sup>. Although there are many roadblocks to seeking  
220 help (e.g., poor mental health literacy, negative past experience), stigma is considered the  
221 most important barrier among young elite athletes<sup>20</sup> and college athletes<sup>30</sup>. This finding is  
222 consistent with reports from the general population, where stigma is also considered a major

223 barrier to help seeking for mental health<sup>31</sup>. Stigma is a multifaceted concept that encompasses  
224 different types such as personal aspects, perceptions of stigma in others, internalized  
225 dimensions, reluctance to disclose to others, desire for control or social distance, and a  
226 perception that illness is a result of personal weakness<sup>32</sup>. Despite a need for psychological  
227 services within sporting contexts – both for performance and mental health issues – athletes  
228 underutilize such services on account of the perceived stigma from others<sup>33,34,35</sup>.

229

230 Culture, sport type, and gender are important determinants of athletes' attitudes towards  
231 psychological consultation and counseling, particularly with regard to fears of being  
232 stigmatized by others as weak, deficient, or psychologically unfit<sup>30,36</sup>. Thus, an important  
233 question with regard to the primary purpose of this paper is whether or not the problem of  
234 mental health stigma is related to the concept of mental toughness; however, no research to  
235 date has directly examined this question among elite athletes. There is reason to believe that  
236 the social and cultural conditions of sport may foster conditions in which personal resources  
237 such as those encompassed by mental toughness (e.g., overcoming obstacles, perseverance)  
238 are valued so highly that athletes may be less likely or unwilling to seek help for mental  
239 health issues because of the anticipation of personally being perceived or treated unfairly.  
240 Research on the subcultural ideals, beliefs and values of mental toughness in the Australian  
241 Football League<sup>37,38</sup> indicated that players who internalized perceived 'mentally tough'  
242 dimensions of the social-cultural context (e.g., play through injury or fatigue, view adversity  
243 as a challenge rather than threat) are often held in high regard, when compared to those  
244 players who do not conform to these standards. Although not directly related to the issue of  
245 mental health stigma, several of the behaviors found to underpin the socio-cultural features of  
246 mental toughness in these contexts (e.g., ongoing improvement, uncompromising efforts,  
247 infallibility, selflessness) capture an idealized form of masculinity that may have some

248 relevance to help seeking behavior. Athletes who seek professional help to deal with mental  
249 health problems can be viewed by other athletes and coaches as ‘weak’<sup>34</sup>. Nevertheless, as  
250 both of these studies represent case examples of an individual athlete<sup>37</sup> or team<sup>38</sup>, it cannot be  
251 assumed that these subcultural ideals, beliefs and values are representative of other teams or  
252 sports.

253

### 254 **Concluding Thoughts**

255

256 Research on mental health and the stigma associated with seeking professional help for  
257 negative symptoms (e.g., depression, substance abuse) among elite athletes is limited<sup>26</sup>, and  
258 even less is known about the role of mental toughness as an aspect of personality or  
259 subculture of sport that may foster perceptions that individuals with mental health disorders  
260 are weak, flawed, or incompetent. Self-actualization, or the fulfillment of one’s potential<sup>9</sup>, is  
261 a key conceptual thread between mental health and mental toughness. Thus, theory suggests  
262 that mental toughness may represent a positive indicator of mental health or facilitate its  
263 attainment, rather than be at odds with it. However, there is no research that has directly  
264 tested this thesis in elite athletes. Related research that has examined mental toughness  
265 among general samples of athletes, students, employees, and military personnel has shown  
266 that mental toughness is positively associated with goal progress, objective performance, and  
267 positive symptoms of mental health (e.g., thriving), but is inversely related with negative  
268 symptoms of mental health (e.g., depression). On the basis of this review of theory and  
269 evidence, therefore, it seems premature to propose that mental health and mental toughness  
270 are contradictory concepts in the world of elite sport.

271

272 More broadly, the notion that mental health and mental toughness are contradictory concepts  
273 in elite sport may be too simplistic. First, what is considered ‘healthy’ is dependent on socio-  
274 cultural factors (e.g., geography, societal virtues) that may vary across time, context, or  
275 culture<sup>39</sup>. In collectivist cultures (e.g., China), for example, the welfare of the group takes  
276 precedence over an individual’s interests, which contrasts with individualist cultures where  
277 the welfare of the client is the primary focus<sup>40</sup>. Second, the extent to which the subcultural  
278 norms, beliefs and values of mental toughness within particular sporting environments foster  
279 an idealized form of masculinity and therefore reduce help seeking intentions and  
280 behaviors<sup>37,38</sup> likely depends on factors like age, gender, and sport type. For example, when  
281 compared with men, women display a greater tolerance to the stigma associated with mental  
282 health problems and help-seeking behavior and therefore are more likely to discuss problems  
283 and admit vulnerability<sup>41,42</sup>. From a social identity perspective<sup>43</sup>, whether or not an athlete  
284 “buys in” to the subcultural ideals of mental toughness within team should depend on the  
285 degree to which one identifies with that team (see also<sup>44,45</sup>).

286

287 Multidisciplinary sport science and medicine teams play an important role in the evaluation,  
288 diagnosis, and management of a range of psychological, social and physiological factors  
289 central to athlete performance and health<sup>46</sup>. Key here is achieving an optimal balance between  
290 preventing ill-health and optimizing health and performance<sup>47</sup>. When it comes to mental  
291 health and performance, however, this distinction is not always so clear cut. Differentiating  
292 non-pathological indices (e.g., reduced energy, performance anxiety) from pathological  
293 symptoms (e.g., sleep disturbances such as insomnia) can be difficult for clinicians,  
294 particularly in cases where there are several similarities in presenting issues such as major  
295 depressive disorder and overtraining<sup>48</sup>. It is therefore important that scientists and clinicians

296 understand these nuances so that they can be diagnosed and managed using evidence-based  
297 techniques<sup>28</sup>.

298

299 The theory and evidence reviewed in this article suggests that mental toughness may  
300 represent a positive indicator of mental health, or facilitate its attainment, rather than be at  
301 odds with it. As a concept that resonates with most athletes and coaches as central to high  
302 performance, interventions that are marketed as targeting mental toughness could be used as a  
303 ‘hook’ to attract athletes (and coaches and sport scientists) into settings that can open  
304 dialogue on the importance of mental health and improve knowledge of key issues (e.g.,  
305 stigma, symptoms). In other words, athletes and coaches may be more likely to show interest  
306 and engage in programs that are branded as ‘mental toughness development’ than they are for  
307 mental health services on account of the perceived stigma from others<sup>33,34,35</sup>. Such efforts will  
308 be most effective when they target norms, beliefs, and values of key stakeholders who  
309 operate across different layers of an organization and which consider individual (e.g., needs  
310 and competencies, mental health literacy), intra-group (e.g., administrative and technical  
311 resources), inter-group (e.g., common understanding of goals) and organizational factors  
312 (e.g., policies)<sup>49,50</sup>.

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